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Transmitted herewith for filing is the

- ☐ patent application of
- ☒ continuation patent application of
- ☐ divisional patent application of
- ☐ continuation-in-part patent application of

Inventor(s)/Applicant Identifier: NAZEM et al.

For: DYNAMIC PAGE GENERATOR

☒ This application claims priority from each of the following Application Nos./filing dates:

08/873,975/Jun 12, 1997.

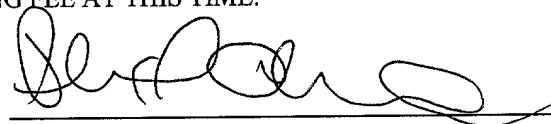
the disclosure(s) of which is (are) incorporated by reference.

☐ Please amend this application by adding the following before the first sentence: "This application is a ☐ continuation ☐ continuation-in-part of and claims the benefit of U.S. Provisional Application No. 60/_____, filed _____, the disclosure of which is incorporated by reference."

Enclosed are:

- ☒ 7 sheet(s) of ☒ formal ☐ informal drawing(s).
- ☒ An assignment of the invention to Yahoo, Inc.
- ☐ A ☐ signed ☐ unsigned Declaration & Power of Attorney
- ☒ A ☒ signed ☐ unsigned Declaration.
- ☒ A Power of Attorney.
- ☒ A verified statement to establish small entity status under 37 CFR 1.9 and 37 CFR 1.27 ☒ is enclosed ☐ was filed in the prior application and small entity status is still proper and desired.
- ☐ A certified copy of a _____ application.
- ☐ Information Disclosure Statement under 37 CFR 1.97.
- ☐ A petition to extend time to respond in the parent application.
- ☐ Notification of change of ☐ power of attorney ☐ correspondence address filed in prior application.

DO NOT CHARGE THE FILING FEE AT THIS TIME.



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Filed or Issued: June 12, 1997

I hereby declare that I am:

☐ the owner of the small business concern identified below:

[x] an official of the small business concern empowered to act on behalf of the concern identified below:

Name of Small Business Concern: Yahoo, Inc.

Address of Small Business Concern: 3400 Central Expressway, Suite 201
Santa Clara, CA 95051

I hereby declare that the above-identified small business concern qualifies as a small business concern as defined in 13 CFR 121.12, and reproduced in 37 CFR 1.9(d), for purposes of paying reduced fees to the United States Patent and Trademark Office, in that the number of employees of the concern, including those of its affiliates, does not exceed 500 persons. For purposes of this statement, (1) the number of employees of the business concern is the average over the previous fiscal year of the concern of the persons employed on a full-time, part-time or temporary basis during each of the pay periods of the fiscal year, and (2) concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both.

Thereby declare that rights under contract or law have been conveyed to and remain with the small business concern identified above with regard to the invention, entitled DYNAMIC PAGE GENERATOR by inventor(s) Farzad Nazem, Ashvinkumar P. Patel described in:

the specification filed herewith.

[x] Application No. 08/, filed June 12, 1997

□ Patent No. _____, issued _____.

If the rights held by the above identified small business concern are not exclusive, each individual, concern or organization having rights in the invention is listed below* and no rights to the invention are held by any person, other than the inventor, who would not qualify as an independent inventor under 37 CFR 1.9(c) if that person made the invention, or by any concern that would not qualify as a small business concern under 37 CFR 1.9(d), or a nonprofit organization under 37 CFR 1.9(e).

*NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

Name _____

Address _____

☐ Individual

Small Business Concern

☐ Nonprofit Organization

Name _____

Address _____

☐ Individual

☐ Small Business Concern

☐ Nonprofit Organization

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b)).

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

Name of Person Signing:

Title of Person if Other than Owner: GENERAL COUNSEL AND SECRETARY

Address of Person Signing: 3400 Central Expressway, Suite 201
Santa Clara, CA 95051

Signature

Date _____

PATENT APPLICATION

DYNAMIC PAGE GENERATOR

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DYNAMIC PAGE GENERATOR

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BACKGROUND OF THE INVENTION

The present invention relates to the field of customized information presentation. More specifically, one embodiment of the invention provides a custom page server which can quickly serve custom pages and is scalable to handle many users simultaneously.

Web servers for serving static documents ("Web pages") over the global Internet are known. While static documents are useful in many applications where the information to be presented to each requesting user is the same, some applications require customization to appeal to users. For example, in presenting news to users, custom pages present news which is more relevant to the requesting users than static pages. With static pages, a user will often have to scroll through many topics not of interest to that user to get to the information of interest. With custom pages, the information is filtered according to each user's interest.

Customizing a server response based on the requestor is known, however known systems do not scale well. One method of serving custom pages is to execute a script, such as a CGI (Common Gateway Interface) script, or other program to collect the information necessary to generate the custom page. For example, if the custom page is a news page containing stock quotes, sports scores and weather, the script might poll a

quote server to obtain the quotes of interest, poll a sports score server to obtain the scores of interest and poll a weather server to obtain the weather. With this information, the server generates the custom page and returns it to the user. This approach is useful where there are not many requestors and where the attendant delay is acceptable to users. While it may be the case that current users are willing to wait while pages load in their browsers, growing impatience with waiting will turn users away from such servers, especially as use increases.

One approach to avoiding long waits is to transfer the custom information in non-real-time, so that the information is stored local to the user as it arrives and is presented to the user on request. A disadvantage of such a system is that the networks used by the user become clogged with data continually streaming to the user and require large amounts of local storage. Another disadvantage is that the locally stored information will become out of date as the server receives new data.

From the above it is seen that an improved system for delivering custom pages is needed.

SUMMARY OF THE INVENTION

An improved custom page server is provided by virtue of the present invention. In one embodiment, user preferences are organized into templates stored in compact data structures and the live data used to fill the templates is stored local to the page server which is handing user requests for custom pages. One process is executed on the page server for every request. The process is provided a user template for the user making the request, where the user template is either generated from user preferences or retrieved from a cache of recently used user templates. Each user process is provided access to a large region of shared memory which contains all of the live data needed to fill any user template. Typically, the pages served are news pages, giving the user a custom selection of stock quotes, news headlines, sports scores, weather, and the like. With the live data stored in a local,

shared memory, any custom page can be built within the page server, eliminating the need to make requests from other servers for portions of the live data. While the shared memory might include RAM (random access memory) and disk storage, in many computer systems, it is faster to store all the live data in RAM.

If the volume of requests becomes too great for one page server to handle, the system is easily scaled by adding additional page servers. Each page server maintains its own copy of the live data in its shared memory, and needs to maintain only the user templates for the requests it is handling, so no communication between page servers is needed.

A further understanding of the nature and advantages of the inventions herein may be realized by reference to the remaining portions of the specification and the attached drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a block diagram of a client-server architecture according to one embodiment of the present invention;

FIG. 2 is a schematic diagram showing how a user's custom page is generated from a user configuration, a global template and live data.

FIG. 3 is an illustration of a global front page template as might be used to generate user templates.

FIG. 4 is an illustration of a user template generated from the global front page template of FIG. 3 as might be used to generate a custom user page.

FIG. 5 is an illustration of a user page generated using the global template of FIG. 4.

FIG. 6 is an illustration of how intelligent defaults are selected.

Two appendices are included at the end of this description. Appendix A is a full listing of the user template shown in part in FIG. 4. Appendix B is an HTML source code listing of the HTML page used to generate the browser display shown in FIG. 5.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIG. 1 shows a client-server system 100 which is used to display custom news pages. A custom news page is displayed on a browser 102 which obtains the page from a page server 104 via Internet 106. While only one browser 102 is shown, a typical system will have many browsers connecting and disconnecting to the system.

The art of client-server systems using HTTP (HyperText Transport Protocol) messaging or other protocols is well known and will not be addressed in detail here.

Essentially, browser 102 makes a request for a particular page by specifying a Uniform Resource Locator ("URL") for the page. In the example shown in FIG. 1, the request is directed to the URL "http://my.yahoo.com/". Normally, this URL is directed to the root directory of a machine named my.yahoo.com. As is the convention in Internet communications, browser 102 submits the domain portion ("my.yahoo.com") of the URL to a name server, such as name server 108, to determine an actual address for the page server 104. Name server 108 returns an IP (Internet Protocol) address to browser 102 directing it to a page server 104. Where multiple page servers 104 are used, name server 108 returns IP addresses in a round-robin fashion to distribute the load over multiple page servers.

Alternatively, name server 108 might distribute the load more deterministic by tracking browser addresses and hashing the browser address to select a page server 104. It is deterministic in that any given browser always accesses the same page server 104. This allows for more efficient caching of user templates, since more cache hits are likely where a given browser always returns to one page server.

When a page server receives the URL for its root directory, it interprets that as a request for the user's custom summary page. The user is determined not from the URL, but from a "cookie" provided by browser 102 with the URL. Cookies are strings of data stored by browsers and sent along with any request to a URL having a domain associated with the cookie.

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Page server 104 is shown comprising a page generator 210, a shared memory 212 for storing live data and a cache 214

for caching user templates such as user template 202. Page generator 210 generates a custom front page 218 from a user template and the live data stored in shared memory 212.

Although not shown, custom pages other than the front page can be generated in a similar fashion. Using user templates and a shared memory for the live data, page server 104 can quickly build custom pages in response to a user request. Where the user template is cached, the page can be generated entirely within page server 104.

Shared memory 212 is organized as a set of memory mapped files. With memory mapped files, the operating system maintains the data in permanent storage, but permanently caches the files in shared memory 212. This allows for quick recovery should a page server crash, since all of the shared memory can simply be reloaded from the permanent storage. This is a great feature from a user convenience standpoint, since the user will never be faced with a situation where they have to wait for a server to rebuild a page for them by querying the various data providing servers, such as sports server 230, stock server 232 and news server 234. As should be apparent from this description and FIG. 2, page generator 210 can generate custom front page 218 much more quickly using shared memory 212 as compared with using servers 230, 232, 234 and page template 202. One reason for this is that the time it takes to retrieve data from shared memory 212 does not appreciably increase relative to the bandwidth delay time when more data is retrieved. For example, if stock server 232 were queried for each individual stock quote, a page with fifty stock quotes might take ten times as long to generate as a page with five stock quotes.

One aspect of the present invention is the realization that every piece of information a person can request on a page is storable in a shared memory closely coupled to a page generator. For example, page server 104 shown in FIG. 2 can accommodate 65,000 different symbols for which quotes are provided. In one embodiment, all of the stock information for all 65,000 symbols is stored in a 13 to 14 megabytes section of the shared memory. Where shared

memory 212 is a 64MB or 128MB memory, this leaves sufficient room for other data, such as news headlines, sport scores, and memory used by the operating system for each process running on page server 104. In some embodiments, shared memory 212 is large enough to also accommodate more than just news headlines. For example, news summaries (as described further in connection with FIG. 5) can be stored in shared memory 212 for quick access.

As shown in FIG. 2, the user's front page template 202 does not need to be generated each time, but rather is stored in cache 214. In a preferred embodiment, user templates are stored in cache 214 for long enough to be reused. Some users might choose to access their front page only infrequently, while others might choose to access their front page hourly. Since the pages are customized and dynamic, the user would see different information each time, but the same user template would be used each time. Of course, when the user edits his or her template, any cached copy of a user template is flushed. A garbage-collection process may also flush the cache of user pages which have been inactive for several days. In one implementation, cache 214 would accommodate 60,000 to 70,000 user templates. Where a particular page server is assigned on a random round robin basis, multiple page servers may cache their own copy of a given user template, but where a user is directed always to a particular server (except in the case where the particular server fails and a secondary server is used), that page server will be the only one which needs to cache that user's user template. Even where the round robin name server scheme is used, some browsers may cache IP addresses, even longer than the specified "time to live" variable associated with the IP address, in order to save the time required to obtain an IP address each time. With such a browser, the user is effectively directed to the same page server each time and the server side of the page serving system does not need to direct users to particular page servers. With newer browsers, however, the "time to live" variable is honored and new requests are made for IP addresses after the "time to live"

has expired. In these cases, if the assignment of a user to a single page server is desired, name server 108 (see FIG. 1) will use the user name from the provided cookie or the user's IP address to assign a page server based on a hash of the user name or IP address.

FIG. 3 is an illustration of global user template 204. Global user template 204 is an HTML (HyperText Markup Language) document with additional tags as placeholders for live data. Several placeholders 302 are shown in FIG. 3.

FIG. 4 is an illustration of user template 202 as might be generated from global user template 204 (see Fig. 3) and a user configuration record 206. A full listing of user template 202 is included herewith in Appendix A. User template 202 is determined by the user configuration and is independent of the live data, therefore it can be cached without needing to be updated, unless the user chooses to edit the configuration information. Preferably, the user templates are cached rather than the user configuration, to save a step and reduce the time to respond to a request for the page. Caching is more effective where the typical user makes several requests in a short time span and then doesn't make any requests for a long period of time.

Essentially, user template 202 contains the information about the user which does not change until the user changes his or her preferences. Of course, the system operator could choose to make changes to how the system operates, thus requiring changes to the user preferences and user templates. User template 202 is shown comprising internal variables such as a time zone and demographic information. The demographic information, on the second line in FIG. 4 is used for selection of an advertisement which will be part of the custom page. In this example, the advertisement is targeted by the demographic information in the user template ":M,85,95035,T,*" indicating that a suitable ad should be targeted to a male user, age 85, located in zip code 95035, etc. As shown, the portfolio section contains selected stock symbols, the scoreboard section contains

selected team symbols, and the weather section contains selected weather cities/zip codes.

The selections of stock quote symbols, team scores, and weather cities are set by the user. In a preferred embodiment, intelligent defaults are selected by the system prior to user selection, so that users unfamiliar with the customization process will nonetheless be able to view non empty custom pages. This is described in further detail below in connection with FIG. 6.

FIG. 5 is an illustration of a user front page 218 returned by page server 104. User front page 218 as shown in FIG. 5 includes many elements, some of which are described here in further detail. User front page 218 is built according to a user template and live data. The user template specifies, for example which quotes are shown in the portfolio module, which cities are displayed in the weather module, etc. Each of the modules 504 can be customized by a user and moved about front page 218. The modules 504 are also reusable, in that any customized module which appears on multiple pages can be edited from any one of those pages and the edits will be reflected on each of the pages. Other custom pages for the user can be viewed by selecting one of the page buttons 502 appearing below the header. Other pages and utilities can be selected using the buttons 508 which are part of the header.

In addition to all of the live data shown in FIG. 5 being stored in the shared memory, summaries from each of the major news topics can also be stored in the shared memory and viewed by pressing on the news topic header, such as news topic header 506. As should be noted, the page generator can also intelligently display dates 510 customized for a particular user, using a time zone variable in the user template. This time zone variable is shown as the first line in user template 202 in FIG. 4. In addition to being able to modify each of the modules, in many cases the order of appearance of the modules is customizable. For example, the order of the various sections of user template 202 shown in FIG. 4 is not fixed.

The preference editing process can be initiated by the user pressing the appropriate edit button 512. As explained above, once the editing process is complete, the user template is flushed from the cache and regenerated.

5 Since each of the news stories is essentially a static page linked to a headline shown in the news section, these can simply be linked to static pages on a news server.

Referring now to FIG. 6, an illustration of intelligent defaulting for populating a user template, and consequently a user summary page. As part of a registration process, a user indicates, among other things, his or her zip code. This zip code is used to locate an approximate longitude and latitude for the user using a zip code lookup table 602. This allows the user's location to be located on a map 604. Map 604 provides city boundaries and, with team location table 606, also provides locations for various sports teams which can be selected in a sports module. In selecting a default predetermined number of cities and sports teams for inclusion as initial selections for a particular user, a circle is drawn around the user and increased in diameter until the circle envelopes a suitable predetermined number of cities and sports teams. In this way, each user is guaranteed a default number of nearby teams and cities for sports and weather, respectively. While this assumes that the user is interested in only the teams nearest the user, the system can be arranged to provide intelligent defaults where geographic anomalies are known to exist. Geographic anomalies occur in communities which have more loyalty to distant teams than nearby teams, such as might occur when the distant team is much better than the nearby team or when the nearby team recently moved to a distant location. In any case, the user is allowed customize his or her pages beginning with the intelligent defaults selected.

Other intelligent defaults can be provided in other contexts. For example, the header of user front page 218 includes a button 508 labelled "myweb" which, when pressed, would lead the user to a custom listing of web sites. The initial defaults for that custom listing of web sites might be

The above description is illustrative and not restrictive. Many variations of the invention will become apparent to those of skill in the art upon review of this disclosure. The scope of the invention should, therefore, be determined not with reference to the above description, but instead should be determined with reference to the appended claims along with their full scope of equivalents.

The above description is illustrative and not
5 restrictive. Many variations of the invention will become
apparent to those of skill in the art upon review of this
disclosure. The scope of the invention should, therefore, be
determined not with reference to the above description, but
instead should be determined with reference to the appended
10 claims along with their full scope of equivalents.

Appendix A. Listing of a User Template

```

<!-- timezone:-8,PT 0 -->
<!-- ad:M,85,95035,T,* 792 -->
5 <!--
portfolio:Quotes,pf_1,1,^DJI,^NYA,^IXIC,^SPX,^XAX,YHOO,NSCP,IOM,NSCP,YHOO
2836 -->
<!--
scoreboard:NCAAFSSC,NHLSAN,MLSSAN,NCAAFSSS,ALOAK,NBAGSW,NFLOAK,NCAAFCCD,NF
10 LSFO,NLSFO 3803 -->
<!-- weather:f,30901,uk_londo,94601,95101 4368 -->
<!--
mode_bar:"FRONT_PAGE",.hier=News+Summary%3aEdit&.done=http://my.yahoo.com/
news/summary.html?v 4538 -->
15 <!-- summary2:3,rt,rw,z0000,mlb,re,vf 4597 -->
<!-- motd:us_motn.html 4696 -->
<html>
<head>
<title>My Yahoo! news summary for ash802</title>
20 </head>
<body>

<center>
<map name="top"><area shape=rect coords="0,0,45,66"
25 href="/news/summary.html?v"><area shape=rect coords="45,0,90,66"
href="/internet/directory.html?v"><area shape=rect coords="90,0,135,66"
href="/contacts/white_pages.html?v"><area shape=rect coords="135,0,346,66"
href="/?myHome"><area shape=rect coords="346,0,389,66"
href="/help/news/summary.html"><area shape=rect coords="389,0,431,66"
30 href="http://edit.my.yahoo.com/config/eval_profile"><area shape=rect
coords="431,0,477,66" href="http://edit.my.yahoo.com/config/toffly">
</map>
<center><a href="/bin/top_menu"></a></center>

<p>
<center><form action="http://search.my.yahoo.com/search/my"> <font
size="-2">[ <a
40 href="http://edit.my.yahoo.com/config/set_attr?attr=sloc&value=b&.done=htt
p://my.yahoo.com/news/summary.html?v">move to bottom</a> ] </font><input
size=25 name=p> <font size="-1">&nbsp; <input type=submit
value=Search><input type=hidden name=n value="25"> &nbsp; <a
href="http://search.my.yahoo.com/search/my/options">Options</a></font></fo
45 rm></center><p>
<center>

```



```

<tr bgcolor="#dcdcdc"><td colspan=5 width="100%"><table border=0
cellpadding=2 cellspacing=0 width="100%"><tr><td width="100%"><a
href="/sum/?http://sports.yahoo.com/"><b><font size="+1">S<font
size="+0">COREBOARD</font></font></b></a></td><td align=right><a
5 href="http://edit.my.yahoo.com/config/set_sports?.done=http://my.yahoo.com
/news/summary.html?v"></a></td></tr></table></td></tr>

10 <hr size=0><table border=0 cellpadding=2 cellspacing=0 width="100%">
<tr bgcolor="#dcdcdc"><td colspan=3 width="100%"><table border=0
cellpadding=2 cellspacing=0 width="100%"><tr><td width="100%"><a
href="/my/?http://weather.yahoo.com/"><b><font size="+1">W<font
size="+0">EATHER</font></font></b></a></td><td align=right><a
15 href="http://edit.my.yahoo.com/config/set_wni?.done=http://my.yahoo.com/ne
ws/summary.html?v"></a></td></tr></table></td></tr>
<tr><td align=center colspan=3><font size=0>click on city for extended
20 forecast</font></td></tr>
</table>

<hr size=0>
<p></td>
25 <td align=center valign=top width="100%">

<table border=1 cellpadding=2 cellspacing=0 width="100%">
</table>

30 </td></tr>
</table>

<center>
35 <table border=1 cellpadding=2 cellspacing=0 width="100%">

</table>
</center>

40 <p>
<hr>
<center>
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<tr>
45 <td align=left valign=top><table border=0 cellpadding=0 cellspacing=0>

```


Appendix B. Listing of a User Page

```

<html>
<head>
5  <title>My Yahoo! news summary for ash802</title>
</head>
<body>

<center>
10  <map name="top"><area shape=rect coords="0,0,45,66"
    href="/news/summary.html?v"><area shape=rect coords="45,0,90,66"
    href="/internet/directory.html?v"><area shape=rect coords="90,0,135,66"
    href="/contacts/white_pages.html?v"><area shape=rect coords="135,0,346,66"
    href="/?myHome"><area shape=rect coords="346,0,389,66"
15  href="/help/news/summary.html"><area shape=rect coords="389,0,431,66"
    href="http://edit.my.yahoo.com/config/eval_profile"><area shape=rect
    coords="431,0,477,66" href="http://edit.my.yahoo.com/config/toffly">
</map>
<center><a href="/bin/top_menu"></a></center>
<font size="-5"><p></font><!-- SpaceID=0 noad -->

<font size="-5"><p></font>
25  <p>
    <center><form action="http://search.my.yahoo.com/search/my"> <font size="-2">[ <a
    href="http://edit.my.yahoo.com/config/set_attr?attr=sloc&value=b&.done=http://my.y
    ahoo.com/news/summary.html?v">move to bottom</a> ] </font><input size=25 name=p>
    <font size="-1">&nbsp;<input type=submit value=Search><input type=hidden name=n
30  value="25"> &nbsp;<a href="http://search.my.yahoo.com/search/my/options"
    >Options</a></font></form></center><p>
    <center>
    <table border=0 cellpadding=2>
    <tr>
35  <td align=center><font color="#000000"><b>Sections:</b>&nbsp;&nbsp;</font></td>
    <td align=center bgcolor="#dcdcdc"><font
    color="#000000"><b>Front&nbsp;Page</b></font></td>
    <td>&nbsp;&nbsp;&nbsp;</td>
    <td align=center><a href="/news/business/summary.html?v">Business</a></td>
40  <td>&nbsp;&nbsp;&nbsp;</td>
    <td align=center><a href="/news/portfolio_summary.html?v">Portfolios</a></td>
    <td>&nbsp;&nbsp;&nbsp;</td>
    <td align=center><a
    href="/news/entertainment/summary.html?v">Entertainment</a></td>
45  <td>&nbsp;&nbsp;&nbsp;</td>
    <td align=center><a href="/news/sports/summary.html?v">Sports</a></td>
    <td>&nbsp;&nbsp;&nbsp;</td>
    <td align=center><a href="/news/technology/summary.html?v">Technology</a></td>
    </tr>
50  </table>
    </center>

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```
<tr><td align=center colspan=4><form method=get  
action="http://quote.yahoo.com/quotes"><font size="-1"><input type=text size=10  
name=symbols><input type=submit value="Get Quotes"><br><font size="0">quotes
```

```

delayed 20 minutes - <a href="/fin_disclaimer.html">disclaimer</a><br>click on
symbol for detailed quote + news<br><b>*</b> indicates new news during last
24hrs<font></font></td></tr></table>
<hr size=0><table border=0 cellpadding=1 cellspacing=0 width="100%">
5 <tr bgcolor="#dcdcdc"><td colspan=5 width="100%"><table border=0 cellpadding=2
cellspacing=0 width="100%"><tr><td width="100%"><a
href="/sum/?http://sports.yahoo.com/"><b><font size="+1">S<font
size="+0">COREBOARD</font></font></b></a></td><td align=right><a
href="http://edit.my.yahoo.com/config/set_sports?.done=http://my.yahoo.com/news/su
10 mmmary.html?v"></a></td></tr></table></td></tr>
<tr><td colspan=5><b><font size="-1">TODAY</font></b></td></tr>
<tr><td valign=top><font size=-1><a
15 href="http://sports.yahoo.com/al/">AL</a></font></td><td valign=top><font size=-
1>Detroit<br><b>Oakland</b></font></td><td align=right valign=top><font size=-
1>8<br>9</font></td><td valign=top>&#160;</td><td valign=top><font size=-1><a
href="http://sports.yahoo.com/al/rcps/970603/detoak.html">F</a></font></td></tr>
<tr><td valign=top><font size=-1><a
20 href="http://sports.yahoo.com/nl/">NL</a></font></td><td valign=top><font size=-
1>San Francisco<br><b>Florida</b></font></td><td align=right valign=top><font
size=-1>9<br>1</font></td><td valign=top>&#160;</td><td valign=top><font size=-
1><a
href="http://sports.yahoo.com/nl/rcps/970603/sfofla.html">F</a></font></td></tr>
25 <tr><td colspan=5><b><font size="-1">YESTERDAY</font></b></td></tr>
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href="http://sports.yahoo.com/al/">AL</a></font></td><td valign=top><font size=-
1>Detroit<br><b>Oakland</b></font></td><td align=right valign=top><font size=-
1>8<br>7</font></td><td valign=top>&#160;</td><td valign=top><font size=-1><a
30 href="http://sports.yahoo.com/al/rcps/970602/detoak.html">F</a></font></td></tr>
<tr><td valign=top><font size=-1><a
href="http://sports.yahoo.com/nl/">NL</a></font></td><td valign=top><font size=-
1>San Francisco<br><b>Florida</b></font></td><td align=right valign=top><font
size=-1>2<br>4</font></td><td valign=top>&#160;</td><td valign=top><font size=-
35 1><a
href="http://sports.yahoo.com/nl/rcps/970602/sfofla.html">F</a></font></td></tr>
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href="/my/?http://weather.yahoo.com/"><b><font size="+1">W<font
size="+0">EATHER</font></font></b></a></td><td align=right><a
href="http://edit.my.yahoo.com/config/set_wni?.done=http://my.yahoo.com/news/summa
45 ry.html?v"></a></td></tr></table></td></tr>
<tr><td><a href="http://weather.yahoo.com/forecast/Augusta_GA_US_f.html"><font
size="-1">Augusta, GA</font></a></td><td align=right><font size="-1">63...78
50 F</font></td><td align=right><font size="-1"></font></td></tr>

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<li><a
href="http://www.yahoo.com/headlines/970603/news/stories/bombingpenalty_1.html">Ex
perts: Plea for Mercy is McVeigh's Best Hope</a>
</ul></td></tr>
5 <tr><td bgcolor="#dcdcdc" colspan=2><a href="/news/world.html?v"><b><font
size="+1">W</font>orld</b></a>&nbsp; <i>Jun 3 2:09pm</i></td></tr>
<tr><td colspan=2><ul>
<li><a
href="http://www.yahoo.com/headlines/970603/international/stories/canada_6.html">C
10 anadian Liberals Face Thorny Issues</a>
<li><a
href="http://www.yahoo.com/headlines/970603/international/stories/nato_10.html">U.
S. Advocates Ready for NATO Expansion Fight</a>
<li><a
15 href="http://www.yahoo.com/headlines/970603/international/stories/leone_11.html">U
.S. Ferries More Foreigners from Sierra Leone</a>
</ul></td></tr>
<tr><td bgcolor="#dcdcdc" colspan=2><a
href="http://biz.yahoo.com/news/z0000.html"><b><font size="+1">U</font>.S. Stock
20 News and Report</b></a>&nbsp; <i></i></td></tr>
<tr><td colspan=2><ul>
<li><a href="http://biz.yahoo.com/finance/97/06/03/crdm_y001_1.html">Cardima Inc
IPO range reduced - underwriter</a>
<li><a href="http://biz.yahoo.com/finance/97/06/03/luk_wtsc_1.html">AMEX to trade
25 Leucadia, West TeleServices options</a>
<li><a href="http://biz.yahoo.com/finance/97/06/03/acv_acva_1.html">CBOE to trade
options on Alberto-Culver Class A</a>
</ul></td></tr>
<tr><td bgcolor="#dcdcdc" colspan=2><a href="/news/sports/mlb.html?v"><b><font
30 size="+1">M</font>ajor League Baseball</b></a>&nbsp; <i>Jun 3 5:15pm</i></td></tr>
<tr><td colspan=2><ul>
<li><a href="http://sports.yahoo.com/mlb/lgns/970603/draftlist.html">1997 baseball
free agent draft first round selections</a>
<li><a href="http://sports.yahoo.com/nl/lgns/970603/nlstars.html">Mike Piazza
35 leads balloting in NL All-Star voting</a>
<li><a href="http://sports.yahoo.com/nl/lgns/970603/nlvotes.html">National League
All-Star voting results</a>
</ul></td></tr>
<tr><td bgcolor="#dcdcdc" colspan=2><a
40 href="/news/entertainment/top_stories.html?v"><b><font
size="+1">E</font>ntertainment Top Stories</b></a>&nbsp; <i>Jun 3
6:35pm</i></td></tr>
<tr><td colspan=2><ul>
<li><a href="http://www.yahoo.com/headlines/970603
45 /entertainment/summary_1.html#headline_1">Clinton Reflects on Music </a>
<li><a href="http://www.yahoo.com/headlines/970603
/entertainment/summary_1.html#headline_2">Gifford: Marriage is Solid </a>
<li><a href="http://www.yahoo.com/headlines/970603
/entertainment/summary_1.html#headline_3">Rockabilly Legend Hospitalized </a>
50 </ul></td></tr>

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|  |  |  | | | | | |
|---|---|---|---|---|---|---|---|
| <a href="/news/entertainment/movies.html?v"><b><font size="+1">M</font>ovies + Film</b></a>&nbsp;  <i>Jun 3 10:13am</i></td></tr> |  | | --- | |  | | |

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WHAT IS CLAIMED IS:

1. A server system for serving a customized information page to a user at a browser on request,
5 comprising:
 - a database of user configurations;
means for obtaining information from the user
referencing a record in the database of user configurations,
the record being a record for the user;
 - 10 means for generating a template based on the record
for the user;
 - a plurality of user processes, one process per user
accessing the server system;
 - a shared memory;
 - 15 a data structure within the shared memory for
storing the dynamic information needed to generate the
customized information page; and
 - response means for responding to a request with an
information page containing dynamic information from the data
20 structure formatted according to the template generated for
the user making the request.
2. The server system of claim 1, wherein the
plurality of user processes execute on a plurality of servers,
25 the server system further comprising a means for assigning one
of the plurality of servers to users who send requests to the
server system but do not already have an associated user
process.
- 30 3. The server system of claim 2, wherein the means
for assigning servers is a means for assigning a specific
server to a particular user, such that the particular user is
assigned the specific server for each request.
- 35 4. The server system of claim 3, further comprising
a cache for caching templates for recently serviced users on
each of the specific servers assigned to particular users.

60949-04669

5. The server system of claim 1, further comprising a cache for caching templates for recently serviced users.

6. The server system of claim 1, further comprising means for generating default user configurations based on user demographic information.

7. The server system of claim 6, further comprising means for determining a default list of cities for a weather report and sports teams for sports reporting based on user demographic information.

8. The server system of claim 7, wherein the means for determining the default list of cities and default lists of sports teams uses user postal code information, the server system further comprising:

means for translating postal code information to user geographic position;

means for comparing the user geographic position to geographic positions assigned to each city and sports team; and

means for determining a threshold distance from the user geographic position which is greater than or equal to a distance to a predetermined nonzero number of cities and a predetermined nonzero number of sports team geographic positions.

9. A method of serving custom news pages, comprising the steps of:

collecting current security quotes for each of a plurality of selectable securities;

collecting current sports news and scores for each of a plurality of selectable sports events;

collecting current news headlines which reference news articles;

formatting the current security quotes, current sports news and current news headlines into a data structure stored in a shared memory;

5

and the current data stored in the data structure in the shared memory to form a custom news page; and

10

5

An custom page server is provided with user preferences organized into templates stored in compact data structures and the live data used to fill the templates stored local to the page server which is handing user requests for custom pages. One process is executed on the page server for every request. The process is provided a user template for the user making the request, where the user template is either generated from user preferences or retrieved from a cache of recently used user templates. Each user process is provided access to a large region of shared memory which contains all of the live data needed to fill any user template. Typically, the pages served are news pages, giving the user a custom selection of stock quotes, news headlines, sports scores, weather, and the like. With the live data stored in a local, shared memory, any custom page can be built within the page server, eliminating the need to make requests from other servers for portions of the live data. While the shared memory might include RAM (random access memory) and disk storage, in many computer systems, it is faster to store all the live data in RAM.

I hereby certify that this correspondence is being
deposited with the United States Postal Service as
first class mail in an envelope addressed to:

Attention: BOX PATENT APPLICATION

Assistant Commissioner for Patents,
Washington, D.C. 20231, on 9/10/99

By TOWNSEND and TOWNSEND and CREW LLP

PATENT

Attorney Docket No. 17887-3-1US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

NAZEM et al.

Serial No.:

Filed: Herewith

For: **DYNAMIC PAGE GENERATOR**

Examiner: Unassigned

Art Unit: Unassigned

LETTER TO OFFICIAL DRAFTSPERSON

Attention: Box Patent Application
Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Enclosed please find seven (7) sheets of formal drawings to be made of record in
the above-identified case.

Respectfully submitted,

9/10/99
Date

Philip H. Albert
Philip H. Albert
Reg. No. 35,819

TOWNSEND and TOWNSEND and CREW LLP
Two Embarcadero Center, 8th Floor
San Francisco, California 94111-3834
(415) 576-0200
Fax (415) 576-0300
PHA:elc

SF 1025853 v1

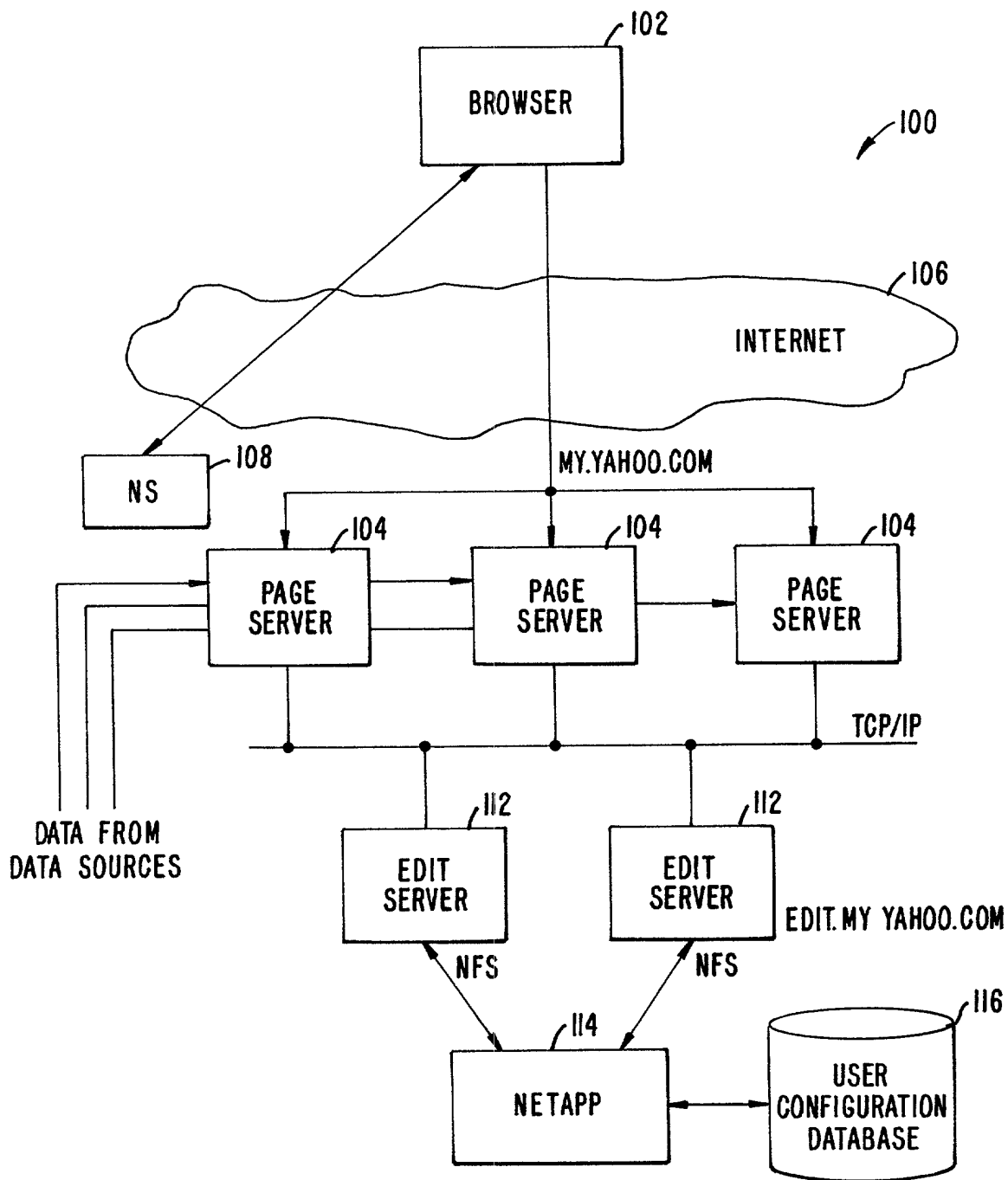


FIG. 1.

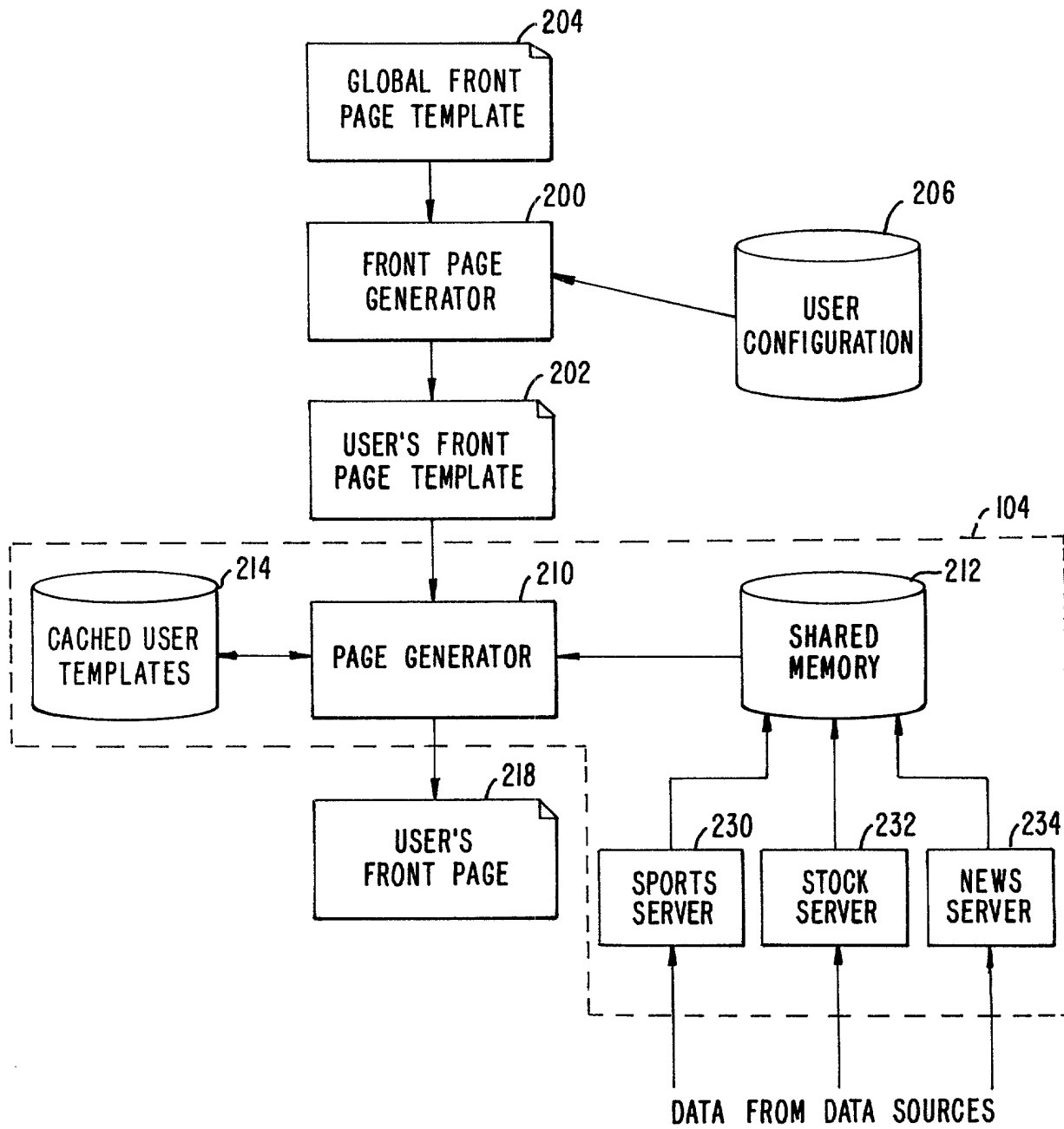


FIG. 2.


```

<html>
<head>
<title>My Yahoo! news summary for <!-- login --></title>
</head>
<body>

<center>
<!--banner:sum -->

<!-- ad -->
<!-- nav bar --> ~ 302
</center>

<table border=1 cellpadding=4 cellspacing=0 width=100%>
<tr><td align=center valign=top width="1%">
<!-- leftside:nsum --> ~ 302

<p></td>
<td align=center valign=top width="100%">
<!-- mode bar:"FRONT PAGE" -->
<!-- channel:nsum --> ~ 302

</td></tr>
</table>

<center>
<table border=1 cellpadding=2 cellspacing=0 width=100%>
<!-- motd:motn.html -->
</table>
</center>
<!-- search -->

<!-- copyright:sum -->

</body>
</html>

```

FIG. 3.

202

```

<!-- timezone:-8,PT 0 -->
<!-- ad:M,85,95035,T,* 792 -->
<!-- portfolio:Quotes,pf_1,1,^DJI,^NYA,^IXIC,^SPX,^XAX,YHOO,NSCP,IOM,NSCP,YHOO
2836 -->
<!--
404 { scoreboard:NCAAFSSC,NHLSAN,MLSSAN,NCAAFSSS,ALOAK,NBAGSW,NFLOAK,NCAAFCCD,NFLSFO
,NLSFO 3803 -->
<!-- weather:f,30901,uk_londo,94601,95101 4368 -->
<!--
mode_bar:"FRONT_PAGE",.hier=News+Summary%3aEdit&.done=http://my.yahoo.com/news
/summary2:3,rt,rw,z0000,mlb,re,vf 4597 -->
<!-- motd:us_motn.html 4696 -->
<html>
<head>
<title>My Yahoo! news summary for ash802</title>
</head>
<body>

...

</body>
</html>

```

FIG. 4.

218

508

508

508

508

508

MY NEWS

WEB

MY CONTACTS

NEWS

YAHOO!

HELP

PREFER- MY AGENT

EDIT

ENCES

508

508

508

508

508

[MOVE TO BOTTOM]

SECTIONS: FRONT PAGE | BUSINESS | PORTFOLIOS | ENTERTAINMENT | SPORTS | TECHNOLOGY

EDIT LEFT-HAND COLUMN

EDIT

PORTFOLIOS

QUOTES

DJIA 7312.15 +22.75

NYSE 442.36 +0.82

NASDAQ 1384.91 -19.88

S&P 500 845.48 -0.88

AMEX 609.02 +1.85

* YH00 32 1/2 -5/8

* NSCP 29 1/4 -5/8

* IOM 19 1/4 +1/2

* NSCP 29 1/4 -5/8

* YAH00 32 1/4 -5/8

GET QUOTES

QUOTES DELAYED 20 MINUTES-DISCLAIMER

CLICK ON SYMBOL FOR DETAILED QUOTE +

NEWS. *NEW NEWS DURING LAST 24 HRS.

SCOREBOARD

TODAY

EDIT

FRONT PAGE JUN 3 7:40 PM

EDIT TOPICS

BREAKING NEWS JUN 3 5:03 PM

JUDGE MOVES TO AVOID McVEIGH 'LYNCHING'

McVEIGH'S EXPECTED APPEALS MAY LAST YEARS

EXPERTS: PLEA FOR MERCY IS McVEIGH'S BEST HOPE

WORLD JUN 3 2:09 PM

CANADIAN LIBERALS FACE THORNY ISSUES

U.S. ADVOCATES READY FOR NATO EXPANSION FIGHT

U.S. FERRIES MORE FOREIGNERS FROM SIERRA LEONE

U.S. STOCK NEWS AND REPORT

CARDIMA INC IPO RANGE REDUCED - UNDERWRITER

AMEX TO TRADE LEUCADIA, WEST TELESERVICES OPTIONS

CBOE TO TRADE OPTIONS ON ALBERTO -CULVER CLASS A

FIG. 5A.

AL DETROIT 8 F		MAJOR LEAGUE BASEBALL JUN 3 5:15PM	
OAKLAND 9			
NL SAN FRANCISCO 9 F		• 1997 BASEBALL FREE AGENT DRAFT FIRST ROUND SELECTIONS	
FLORIDA 1		• MIKE PIAZZA LEADS BALLOTING IN NL ALL-STAR VOTING	
YESTERDAY		• NATIONAL LEAGUE ALL-STAR VOTING RESULTS	
AL DETROIT 8 F		ENTERTAINMENT TOP STORIES JUN 3 6:35PM	
OAKLAND 7			
NL SAN FRANCISCO 2 F		• CLINTON REFLECTS ON MUSIC	
FLORIDA 4		• GIFFORD: MARRIAGE IS SOLID	
		• ROCKABILITY LEGEND HOSPITALIZED	
		506 510	
		MOVIES + FILM JUN 3 10:13AM	
		• FEATURE: NICOLAS CAGE ASKS, WHERE ARE THE HEROES?	
		• NICK CASSAVETES UPDATES FATHER'S 'BOOKIE'	
		• 'LOST WORLD' PROPS UP SLOW BOX OFFICE	
		504	
WEATHER [EDIT]			
AUGUSTA, GA 63...78 F			
LONDON, UK 50...73 F			
OAKLAND, CA 59...70 F			
SAN JOSE, CA 54...75 F			
CLICK ON CITY FOR EXTENDED FORECAST			
504			
TIP CLICKING ON THE MY YAHOO! LOGO AT THE TOP WILL RELOAD AND UPDATE YOUR DEFAULT PAGE.		YAHOO! BACK WEB CHANNEL GUIDE YAHOO! COMMUNITY RELATIONS GET LOCAL · NEWS TICKER · MOTLEY FOOL	

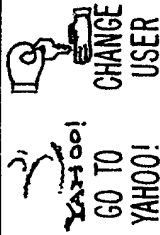


FIG. 5B.

FIG. 5A.
FIG. 5B.

FIG. 5.

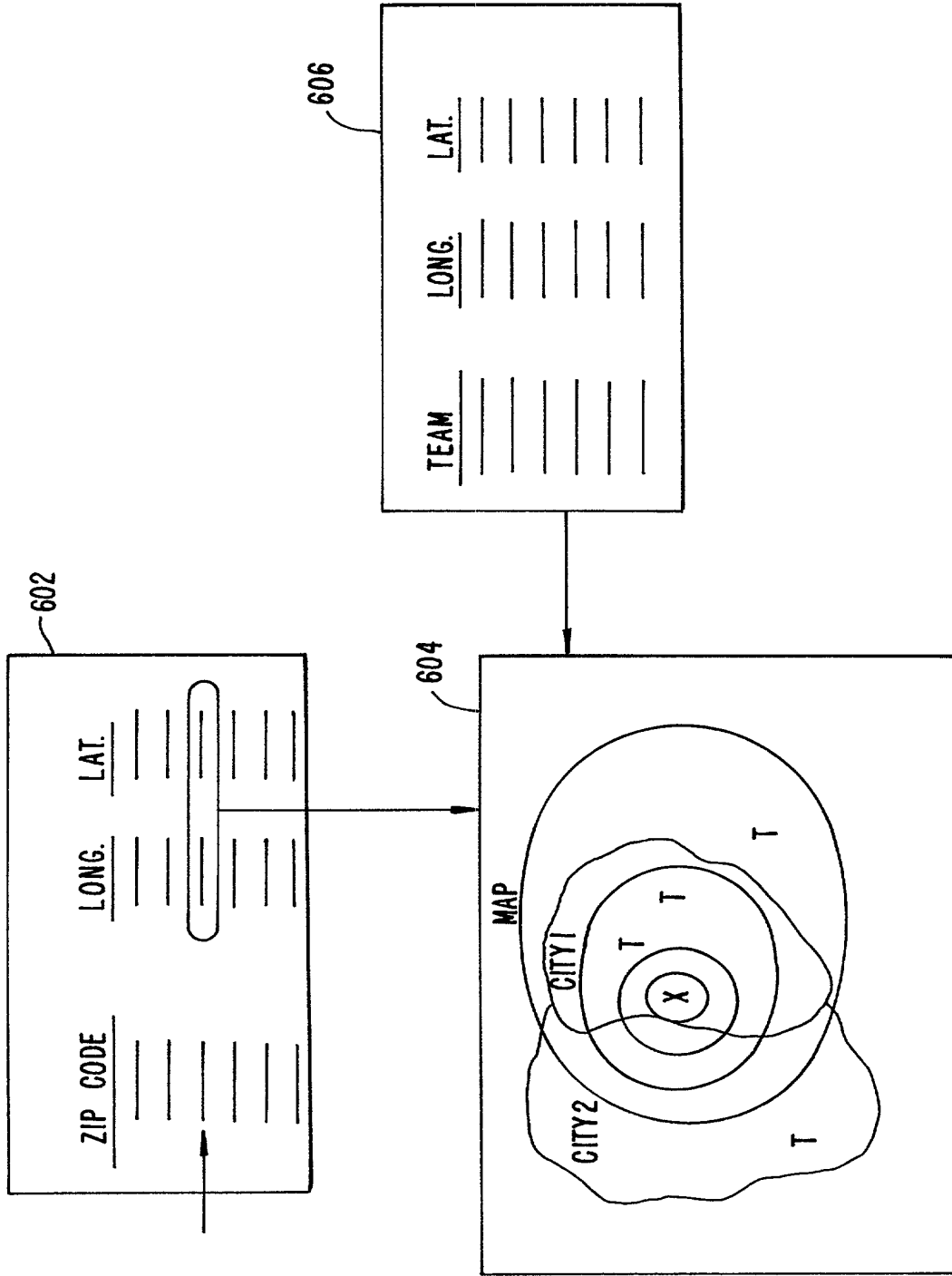


FIG. 6.

DECLARATION

As a below named inventor, I declare that:

My residence, post office address and citizenship are as stated below next to my name; I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural inventors are named below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: **DYNAMIC PAGE GENERATOR** the specification of which ___ is attached hereto or x was filed on June 12, 1997 as Application No. 08/873,975 and was amended on ___ (if applicable).

I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above. I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, Section 1.56. I claim foreign priority benefits under Title 35, United States Code, Section 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s)

Country	Application No.	Date of Filing	Priority Claimed Under 35 USC 119
			Yes _ No _
			Yes _ No _

I hereby claim the benefit under Title 35, United States Code §119(e) of any United States provisional application(s) listed below:

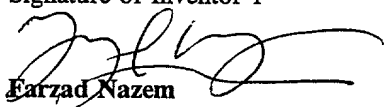
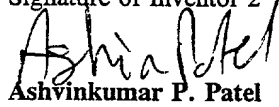
Application No.	Filing Date

I claim the benefit under Title 35, United States Code, Section 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, section 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, section 1.56 which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

Application No.	Date of Filing	Status
		_ Patented _ Pending _ Abandoned
		_ Patented _ Pending _ Abandoned

Full Name of Inventor 1	Last Name NAZEM	First Name FARZAD	Middle Name or Initial	
Residence & Citizenship	City Redwood City	State/Foreign Country CA	Country of Citizenship USA	
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Full Name of Inventor 2	Last Name PATEL	First Name ASHVINKUMAR	Middle Name or Initial P	
Residence & Citizenship	City Milpitas	State/Foreign Country CA	Country of Citizenship USA	
Post Office Address	Post Office Address 269 Edgewater Drive	City Milpitas	State/Country CA	Zip Code 95035
Full Name of Inventor 3	Last Name	First Name	Middle Name or Initial	
Residence & Citizenship	City	State/Foreign Country	Country of Citizenship	
Post Office Address	Post Office Address	City	State/Country	Zip Code

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Signature of Inventor 1  Farzad Nazem	Signature of Inventor 2  Ashvinkumar P. Patel	Signature of Inventor 3
Date 11/25/97	Date 11/25/97	Date

DEC.MRG 7/97
i:\pha\017887\0003\01-dec

POWER OF ATTORNEY BY ASSIGNEE

YAHOO, INC. is the Assignee of the invention entitled: DYNAMIC PAGE GENERATOR, the specification of which ___ is attached hereto or x was filed on June 12, 1997 as Application Serial No. 08/873,975

Assignee hereby appoints the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

Philip H. Albert, Reg. No. 35,819
Michael E. Woods, Reg. No. 33,466

Send Correspondence to: Philip H. Albert TOWNSEND and TOWNSEND and CREW LLP Two Embarcadero Center, 8th Floor San Francisco, CA 94111-3834	Direct Telephone Calls to: (Name, reg. no., tele. no.) Philip H. Albert Reg. No. 35,819 (415) 576-0200
--	--

YAHOO, INC.

Date: 11/25/97

By: [Signature]
(Signature)

Name: JOHN P. LACE
Title: GENERAL COUNSEL AND SECRETARY

CERTIFICATE UNDER 37 C.F.R. § 3.73(b)

Applicant: Farzad Nazem, Ashvinkumar P. Patel

Application No.: 08/873,975 Filed: June 12, 1997

For: DYNAMIC PAGE GENERATOR

YAHOO, INC.

(Name of Assignee)

, a Corporation

(Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

certifies that it is the assignee of the entire right, title and interest in the patent application identified above by virtue of either:

A. ☒ An assignment from the inventor(s) of the patent application identified above. The assignment was recorded in the Patent and Trademark Office at Reel _____, Frame(s) _____, or for which a copy thereof is attached.

OR

B. ☐ A chain of title from the inventor(s), of the patent application identified above, to the current assignee as shown below:

1. From: _____ To: _____
The document was recorded in the Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

2. From: _____ To: _____
The document was recorded in the Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

3. From: _____ To: _____
The document was recorded in the Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet.

☐ Copies of assignments or other documents in the chain of title are attached.

The undersigned has reviewed all the documents in the chain of title of the patent application identified above and, to the best of undersigned's knowledge and belief, title is in the assignee identified above.

The undersigned (whose title is supplied below) is empowered to act on behalf of the assignee.

I hereby declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and further, that these statements are made with the knowledge that willful false statements, and the like so made, are punishable by fine or imprisonment, or both, under Section 1001, Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date : NOVEMBER 25, 1997

Name : JOHN PLAGE

Title : GENERAL COUNSEL AND SECRETARY

Signature : 